23

## What is claimed is:

1. A multiplexing apparatus comprising: a plurality of terminal interface units, each 3 accommodating a line on a terminal side; a buffer unit which is connected to each of said 4 5 terminal interface units by the point-to-point 6 connection; and 7 a network interface unit connected to said 8 buffer unit. the network interface unit 9 accommodating a line on a network side. 10 wherein 11 each of said terminal interface units converts 12 data received from the line on the terminal side to a data block (hereinafter generically called packet 13 type data) as a certain unit, such as a cell and a 14 packet, which is determined by a protocol adopted 1.5 in said network, and transmits the packet type data 16 to the buffer unit; and each of said terminal 17 18 interface units disassembles packet type data received from the buffer unit, and extracts data, 19 to transmit the data onto the corresponding line on 20 21 said terminal side. said buffer unit has a packet type data storing 22

unit for storing the packet type data received from

- 24 a plurality of said terminal interface units, reads
- $25\,$   $\,$  out the packet type data sequentially from the packet
- 26 type data storing unit to transmit the packet type
- 27 data to said network interface unit: and selects one
- 28 of said terminal interface units in conformity with
- 29 a destination of the packet type data received from
- 30 said network interface unit to transmit the packet
- 31 type data to the terminal interface unit, and
- 32 said network interface unit synchronizes the
- 33 packet type data received from said buffer unit with
- 34 the line on said network side to transmit the
- 35 synchronized packet type data to the line on said
- 36 network side, and transmits the packet type data
- and clambally the packet type data
- 37 received from the line on said network side to said
- 38 buffer unit.
  - 1 2. The multiplexing apparatus according to claim 1,
- 2 wherein a transmission speed of the packet type data
- 3 between said buffer unit and said network interface
- 4 unit is coincident with a transmission speed of the
- 5 line on said network side.
- 1 3. The multiplexing apparatus according to claim 1,
- 2 wherein said buffer unit reads out the packet type
- 3 data from said packet type data storing unit
- 4 sequentially in a predetermined order of priorities
- 5 and transmits the packet type data to said network
- 6 interface unit.

- 4. The multiplexing apparatus according to claim 1,
- 2 wherein said packet type data storing unit has
- $\ensuremath{\mathtt{3}}$  –buffers, each being prepared for the corresponding
- 4 one of said terminal interface units, and each of
- 5 said buffers is directly connected to the
- 6 corresponding terminal interface unit by the
- 7 point-to-point connection.
- 1 5. The multiplexing apparatus according to claim 1,
- 2 wherein the line on said network side is an ATM
- 3 (Asynchronous Transfer Mode) line, and said packet
- 4 type data is an ATM cell.
- 1 6. The multiplexing apparatus according to claim 1,
- 2 wherein the line on said network side is an IP
- 3 (Internet Protocol) line, and said packet type data
- 4 is an IP packet.